

WHAT IS CLAIMED IS:

1. A thermoelectric power generation system comprising:
a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation, wherein the working media collects waste heat from the colder side of at least some of the plurality of thermoelectric elements, and wherein after collecting said waste heat, the working media is further heated and then dispenses at least a portion of its heat to said hotter side of at least some of the plurality of thermoelectric elements, thereby generating power with at least some of the plurality of thermoelectric elements.
at least one electrical system that transfers said power from said assembly.
2. The thermoelectric power generation system of Claim 1, wherein the working fluid is heated from a source of heat.
3. The thermoelectric power generation system of Claim 2, wherein the source of heat is combustion.
4. The thermoelectric power generation system of Claim 2, wherein the source of heat is solar.
5. The thermoelectric power generation system of Claim 2, wherein the source of heat is an isotope.
6. The thermoelectric power generation system of Claim 1, wherein the working media is solid.
7. The thermoelectric power generation system of Claim 1, wherein the working media is fluid.
8. The thermoelectric power generation system of Claim 1, wherein the working media heated through combusting the working fluid.
9. The thermoelectric power generation system of Claim 1, wherein the working media is a combination of fluid and solid.
10. The thermoelectric power generation system of Claim 1, wherein at least some of the plurality of thermoelectric elements are configured to allow the working media to pass through them.

11. The thermoelectric power generation system of Claim 10, wherein at least some of the plurality of thermoelectric elements are porous.

12. The thermoelectric power generation system of Claim 1, wherein at least some of the plurality of thermoelectric elements are configured to allow convective heat transport by the working media in the direction of the hotter side of the assembly.

13. The thermoelectric power generation system of Claim 1, further comprising a power generation controller.

14. The thermoelectric power generation system of Claim 13, wherein the power generation controller controls the speed of working media movement.

15. The thermoelectric power generation system of Claim 1, further comprising a plurality of heat exchangers, wherein at least some the heat exchangers are in thermal communication with at least some of the thermoelectric elements.

16. The thermoelectric power generation system of Claim 15, wherein at least some of the heat exchangers provide thermal isolation in a direction of working media movement.

17. The thermoelectric power generation system of Claim 1, wherein at least one of the plurality of thermoelectric elements are configured to allow convective heat transport by the working media in the direction of the hotter side of the assembly, and at least a plurality of others of the thermoelectric elements are configured to provide thermal isolation in a direction of working media movement.

18. The thermoelectric power generation system of Claim 17, wherein the working media is a working fluid, and wherein the working fluid convects heat through the at least one of the plurality of thermoelectric elements, and is thereby heated.

19. A method of generating power with a thermoelectric power generation system, the method comprising the steps of:

moving a working media to thermally interact with a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation;

transferring heat into the working media from the cooler side of at least some of the plurality of thermoelectric elements,

adding further heat to the working media;

dispensing heat from the working media to the hotter side of at least some of the plurality of thermoelectric elements, to thereby generate power with at least some of the plurality of thermoelectric elements.

20. The method of Claim 19, wherein the step of adding further heat comprises combusting the working media.

21. The method of Claim 19, wherein the step of adding further heat comprises solar heating the working media.

22. The method of Claim 19, further comprising passing the working media through at least some of the plurality of thermoelectric elements.

23. The method of Claim 19, further comprising convecting heat with the working media in the direction of the hotter side of at least one of the thermoelectric elements.

24. The method of Claim 19, further comprising controlling the power generation to match a criterion.

25. The method of Claim 24, wherein said criterion is efficiency.

26. The method of Claim 24, further comprising controlling the speed of movement of the working media.

27. The method of Claim 19, further comprising thermally isolating at least some of the thermoelectric elements in a direction of working media movement.